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# HIV-Infected Men's Practices in Notifying Past Sexual Partners of Infection Risk

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## Synopsis .....

*The researchers studied the self-reported practices of men infected with the human immunodeficiency virus (HIV) in Los Angeles concerning notifying past sexual partners of their risk of infection. The sample of 111 men consisted of 87 Hispanics, 14 whites, 9 blacks, and 1 Asian. Ninety-three percent identified themselves as homosexual or bisexual, and 13 percent reported having injected a nonprescription drug. Seventy-five per-*

*cent had tested HIV seropositive within the previous 8 months.*

*Subjects were asked about notifying sexual partners with whom they had had contact in the 12-months before the subject tested HIV seropositive. Of the 111 subjects, 39 (35 percent) reported that they had attempted to inform 1 or more past partners. Of those who attempted, 30 subjects (76.9 percent) reported notifying at least 1 partner. Overall, the 111 subjects reported a total of 926 individual sexual partners during the 12 months; 51 partners (5.5 percent) were informed of their risk by the subjects.*

*A multivariate logistic regression analysis indicated that those with the most past sexual partners were least likely to attempt to notify any partner. The same inverse relationship was obtained for actual notification and may stem in part from the greater frequency of nonidentifiable partners among those reporting many encounters. The extent and quality of posttest counseling regarding partner notification was not assessed. However, rates of attempted notification were nonsignificantly higher among those who received private professional counseling, who belonged to a support group, or who received social support from family or friends. The data suggest that without concerted and culturally appropriate counseling, many HIV-infected persons do not attempt to notify past sexual partners of their risk.*

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**S**EXUAL PARTNER NOTIFICATION has been traditionally an important public health strategy for the control of sexually transmitted diseases (1-3).

Applied to the human immunodeficiency virus (HIV) epidemic, the strategy is the process by which an infected person's sexual or needle-sharing partners are notified of their potential exposure to the virus (4-6), the objective being to bring them into testing and counseling (7-10).

One aspect of this process concerns the extent to which newly diagnosed HIV-infected persons will attempt to notify past sexual partners of their risk. Few empirical studies have examined this issue directly. Intentions to inform sexual partners have been examined among those who had not been tested for HIV (11) or who had not yet received

their test results (12, 13). For example, 27 percent of a sample of homosexual and bisexual men from HIV testing centers in Alameda County, CA, reported that they would not disclose a seropositive status to their nonprimary partners; 12 percent of the sample said they would not inform a primary sexual partner (13).

Other studies have examined disclosure by HIV-infected persons to current sexual partners. Of 25 seropositive women in New Jersey, 52 percent reported that they had disclosed their HIV serostatus to all their sexual partners since learning their status (14). In a study of 107 HIV seropositive homosexual and bisexual men in San Francisco, only 31 percent of their new sexual partners were informed (15). In a 1988-89 sample consisting

primarily of homosexual and bisexual Hispanic men in Los Angeles who tested seropositive within 18 months of participation in that study, 45 percent were sexually active after learning of their serostatus; of them, 52 percent had not informed one or more partners of their infection (16).

We report additional data collected from the Los Angeles sample to determine

- number of subjects who had attempted to notify those with whom they had been sexually active during the year prior to their own seropositive test result
- predictors of attempted notification
- number of subjects who succeeded in making notification, and
- percentage of the total number of reported sexual partners who were notified by the subjects.

## Methods

**Subject recruitment and questionnaire administration.** Adult men diagnosed with HIV infection within the previous 18 months were recruited for study at a public HIV clinic located in a predominantly Hispanic section of Los Angeles. Study candidates were of any ethnic or racial group who spoke English or Spanish and who were 18 years or older. Recruitment was conducted in the waiting area of the clinic by a bilingual Hispanic woman. Of the men approached, 96 percent agreed to participate. Informed consent for questionnaire administration and medical chart review was obtained from each subject.

Subjects responded to a self-administered and confidential questionnaire, printed in English or Spanish, in a private section of the waiting area. The formats of the questions were thoroughly reviewed with each subject prior to self-administration. Subjects sealed the completed questionnaire in an envelope and deposited it in a data collection container. A four-digit numerical code, uniquely derived by each subject, was used as identification. Subjects recorded their number on their questionnaire; the data collector recorded each subject's identification number on a master list. The number was used to link questionnaires with information abstracted from medical charts.

**Measures.** Subjects self-reported their current HIV diagnostic category, HIV seropositive, asymptomatic, or minimal symptoms short of AIDS-related complex (ARC); or ARC; or AIDS, as defined by the revised Centers for Disease Control (CDC) case definition (17). For 89 percent of the subjects, the

Table 1. Characteristics of 111 HIV-infected men in Los Angeles, 1988-89

Characteristic	Percent
<b>Ethnicity:</b>	
White .....	12.6
Hispanic.....	78.4
Other <sup>1</sup> .....	9.0
<b>Age:</b>	
18-28 years .....	33.3
29-34 years .....	36.9
35 years and older .....	29.7
<b>Education:</b>	
Did not complete junior high .....	38.2
Completed junior high, some high school, or high school diploma .....	31.8
Some college or college degree .....	30.0
<b>Income:</b>	
Less than \$5,000.....	41.4
\$5,000-\$9,999.....	27.0
\$10,000 or more .....	31.5
<b>Self-reported sexual orientation:</b>	
Heterosexual.....	7.2
Bisexual.....	26.1
Homosexual .....	66.7
<b>Social support:</b>	
None.....	32.4
Friends or family only.....	38.7
Professional counseling or support group, may include friends or family .....	28.8
<b>Number of past sexual partners:</b>	
1 .....	23.4
2-5 .....	45.0
6 or more .....	31.5
<b>Self-reported diagnostic group:</b>	
HIV asymptomatic.....	61.3
ARC .....	18.0
AIDS.....	20.7
<b>Time since learning serostatus:</b>	
2 months or less .....	33.3
3-7 months.....	41.4
8 months or more .....	25.2
<b>Intravenous drug use:</b>	
Ever used .....	12.8
Used since testing seropositive.....	2.7
<b>Knows that unsafe sex can infect others .....</b>	<b>93.6</b>
<b>Mentioned that male or female prostitute could be source of infection.....</b>	<b>23.1</b>

<sup>1</sup> Category includes 9 blacks and 1 Asian.

self-reported diagnostic category matched information from medical charts.

Using chart information as the criterion, the number of subjects who self-reported a more serious diagnosis was approximately equal to the number who self-reported a less serious diagnosis. When a discrepancy existed, self-reports were used in the analysis and the analysis was repeated using chart diagnosis. This reclassification did not produce any significant effects in the correlational analyses. Diagnostic categories are based on self-reports.

Using the questionnaire, subjects estimated the number of sexual partners they had had during the

12 months before they tested HIV seropositive. Subjects' estimates included all partners during that period. We did not attempt to obtain information on the specific type(s) of sexual activity that occurred with a partner or whether a condom was used. Such ratings would have questionable reliability (18, 19).

Subjects were asked if they had tried to notify any of these partners of their own infection. If subjects answered affirmatively, they were asked to report the number of partners they had tried to notify and the number actually notified.

A separate question asked about prior involvement with prostitutes. Specifically, subjects were asked whether a male or female prostitute could have been a source of their infection. This variable was a proxy for a measure of anonymous sex, and it was examined as a predictor of attempted notification of any past sexual partners.

Subjects indicated whether they had received private counseling from a mental health professional or attended an HIV support group. They were also asked if they had talked to family or friends about their concerns.

Sexual orientation was assessed by asking "Within the past 2 years, have you had sex with men only, with both men and women, or with women only?" Subjects were asked if they had ever injected a nonprescription drug and whether they had injected drugs since they tested seropositive. Several sociodemographic variables, such as ethnic group, age, income, and education were measured with standard response formats.

Statistical analyses were performed with SAS statistical programs. Predictors of attempted contact were examined with an unconditional multivariate logistic regression analysis.

## Results

Of 138 subjects who completed questionnaires, 18 subjects reported that they had not had any sexual partners in the year before they tested seropositive for HIV. For some among this subgroup, responses to other items in the questionnaire ("How do you think you became infected with HIV?") suggested that they did in fact have sexual partners during this period. In order to eliminate this potential source of error, all 18 subjects were excluded from the analysis. An additional nine subjects were excluded owing to missing data on one or more study variables.

The final analytic sample included 111 men with complete data. This study group did not differ

from the exclusion group on any sociodemographic or illness-related factors measured in the study. There were 87 Hispanics (82 percent of whom used a Spanish language questionnaire), 14 whites, 9 blacks, and 1 Asian in the analytic sample. Of the 111 subjects, 93 percent identified themselves as homosexual or bisexual. Sixty-one percent were asymptomatic or had minimal symptoms, 18 percent had ARC, and 21 percent had AIDS. Seventy-five percent had tested seropositive within the previous 8 months.

Table 1 shows additional sample demographics, including social support and counseling, intravenous drug use, involvement with prostitutes, knowledge of sexual transmission of HIV, and number of sexual partners. The number of partners ranged from 1 to 100 per subject. Two subjects reported 100 partners each. Overall, the 111 subjects reported a total of 926 partners during the 12 months.

### Prevalence of attempted and actual notification.

Thirty-nine subjects (35.1 percent) reported that they had attempted to notify 1 or more past sexual partners; 72 (64.9 percent) reported that they had not tried to contact any past partners. Of those who attempted, 30 (76.9 percent) succeeded in notifying 1 or more partners; 9 (23.1 percent) did not notify any past partners.

Of the 926 sexual partners reported, 51 partners (5.5 percent) were notified by the subjects. We analyzed this notification rate in greater detail by taking the number of sexual partners per subject into account. Twenty-six subjects reported one partner each. Of these 26 partners, 14 (53.8 percent) were notified. Fifty subjects reported between 2 and 5 sexual partners for a total of 164 partners, 22 (13.4 percent) of whom were notified. Finally, 35 subjects reported 6 or more partners for a total of 736 partners, 15 (2.0 percent) of whom were notified.

**Predictors of attempted contact.** An unconditional multivariate logistic regression analysis was performed to examine predictors of attempted contact. The main effect of each predictor variable was estimated after statistically controlling for the effects of the other variables in the equation. Interaction terms were not modeled because combining variables would have resulted in subgroups with few subjects. Interval-level variables, such as age, education, income, number of past sexual partners, and time since testing seropositive were trichotomized such that each subgroup contained an ap-

proximately equal number of subjects (table 1).

Table 2 shows the results of the regression analysis as well as unadjusted bivariate information on the prevalence of attempted notification within each subgroup. As seen, the number of past sexual partners was the strongest predictor of attempted notification and paralleled the pattern of results obtained for actual notification rates presented. Among those reporting one partner, 65.4 percent of subjects attempted to notify that partner. Among those with two to five partners, 32 percent attempted to notify one or more partners. Among those with six or more partners, only 17.1 percent attempted to contact one or more partners.

As seen in table 2, there was another notable, although nonsignificant, finding. Attempted notification was somewhat higher among those who reported that they had talked with family and friends about their concerns, had received private, professional counseling, or had been members of a support group, compared with those with no social support.

Two additional results were difficult to interpret. Rate of attempted notification was significantly higher among those who had ARC when responding than among those who were asymptomatic. The difference could be attributable to the possibility that those with ARC knew their serostatus for a longer period and thus had greater opportunity to attempt to notify past sexual partners. Other findings argue against this explanation. First, attempted notification did not differ between those with AIDS and those with asymptomatic infection. Second, the measure of length of time since learning serostatus did not predict attempted notification.

One other puzzling finding involved annual income. Attempted contact was significantly higher among those with annual incomes of \$5,000 to \$9,999 than among those making less than \$5,000. The top income group of \$10,000 or more did not differ from the lowest income group in attempted contact.

## Discussion

Relatively few subjects had attempted to notify any sexual partners with whom they had had sexual contact during the year preceding their own HIV seropositive test result. Only 5.5 percent of the total pool of sexual partners were notified by the subjects. This percentage must be interpreted in terms of subjects' ability to identify and locate a partner.

Indirect information bearing on the effect of

Table 2. Results of unconditional multivariate logistic regression analysis of characteristics of 111 HIV-infected men in Los Angeles, 1988-89

Variable	Percent attempting notification	Odds ratio	P
<b>Ethnicity or race:</b>			
White .....	35.7	1.00	...
Hispanic.....	32.2	0.65	0.64
Other .....	60.0	1.70	0.66
<b>Age:</b>			
18-28 years .....	35.1	1.00	...
29-34 years .....	36.6	1.01	0.98
35 and older.....	33.3	0.61	0.52
<b>Education:</b>			
Did not complete junior high .....	38.1	1.00	...
Completed junior high, some high school, or high school diploma .....	31.4	0.39	0.18
Some college or college degree .....	36.4	0.53	0.44
<b>Income:</b>			
Less than \$5,000.....	23.9	1.00	...
\$5,000-\$9,999 .....	46.7	4.14	0.04
\$10,000 or more .....	40.0	2.61	0.16
<b>Sexual orientation:</b>			
Heterosexual.....	33.8	1.00	...
Bisexual .....	41.4	1.30	0.83
Homosexual .....	25.0	1.28	0.83
<b>Social support:</b>			
None .....	25.0	1.00	...
Friends or family only .....	41.9	2.89	0.14
Any professional counseling or support group .....	37.5	2.18	0.30
<b>Number of past sexual partners:</b>			
1 .....	65.4	1.00	...
2-5 .....	32.0	0.22	0.04
6 or more .....	17.1	0.07	0.004
<b>Self-reported diagnostic group:</b>			
HIV asymptomatic .....	34.3	1.00	...
ARC .....	45.0	7.92	0.02
AIDS .....	33.8	0.89	0.88
<b>Time since learning serostatus:</b>			
2 months or less .....	37.8	1.00	...
3-7 months .....	43.5	0.93	0.91
8 months or more .....	17.9	0.58	0.49
<b>Had used IV drug:</b>			
No .....	32.6	1.00	...
Yes .....	50.0	2.36	0.35
<b>Knew that unsafe sex can infect others:</b>			
No .....	28.6	1.00	...
Yes .....	35.3	1.58	0.68
<b>Mentioned male or female prostitute as source of infection:</b>			
No .....	37.4	1.00	...
Yes .....	32.0	0.69	0.58

NOTE: Rates of attempted notification are unadjusted bivariate effects.

identification is provided by the inverse relationship between number of past sexual partners and attempted notification. Attempted notification was much greater among those reporting one partner during the 12-month period than among those reporting multiple partners during that period. One explanation is that monogamous partners are more likely to be intimate lovers who could be identified and potentially located, thus increasing the prevalence of attempted contact. Subjects reporting multiple partners, however, may have been involved in casual or anonymous encounters in which partners did not identify themselves, thus decreasing the prevalence of attempted contact.

The ability to identify and to locate partners undoubtedly was an important factor underlying our results. Those variables may be conceptualized as first-stage factors in the process of notifying a partner. That is, if a partner is not identifiable, or if a subject judges that a partner cannot be located, the notification process stops. If the partner is identified, second-stage variables, such as concern about the other's welfare, attitudes about social responsibility, level of motivation or willingness to inform, and fear about the consequences of notifying another come into play (20, 21). Those factors may explain partially the finding that, of subjects reporting one partner in the preceding year, 46.2 percent of those partners were not notified.

HIV programs of all 50 States emphasize a patient referral process in which those who test HIV positive are advised and encouraged by post-test counselors to notify sexual and needle-sharing partners of their risk (4). Although our results addressed patterns of partner notification, our data should not be used to evaluate the efficacy of that process, because the extent to which subjects were counseled on notification is unknown. It is of interest, however, that the rate of attempted contact in our sample was somewhat higher among those who reported private professional counseling, support group membership, or social support from family or friends, compared with those who reported no sources of support. Although this result failed to reach statistical significance (possibly because our relatively small sample size did not provide adequate statistical power to detect a significant difference), it suggests the important role of counseling and social support in the partner notification process.

If counseling is to be effective, it should incorporate discussion of the second-stage variables presumed to influence decisions about notifying a partner. Moreover, because the number of previous

sexual partners is a strong predictor of attempted contact, information on this variable collected by posttest counselors may assist the counseling process. A counselor may want to change the approach depending on the number of previous partners reported and the likelihood that partners may be found.

Counseling regarding partner notification should not be limited to the posttest counseling situation. Support services focusing on notification of past partners as well as self-disclosure of HIV infection to current sexual partners are needed and may be effectively implemented at HIV outpatient clinics.

Caution should be used in generalizing the present results. Our sample consisted primarily of low socioeconomic status, inner city, homosexual and bisexual, Hispanic men, many of whom were marginally acculturated and with little education. The sample, however, represents a population that continues to be at greater risk of AIDS than homosexual and bisexual non-Hispanic whites (22-24). Additional studies with other ethnic groups will provide a more refined picture of the prevalence of partner notification among those who are HIV-infected.

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## Pilot Study of AIDS Risk in the General Population

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### Synopsis .....

*This study evaluated a methodology for obtaining information on the prevalence of risk behaviors for human immunodeficiency virus infection (HIV) in the general population. From two census tracts*

*in an upper midwestern urban community, 334 households were identified at random. One adult between the ages of 18 and 55 years in each household was asked to complete a confidential questionnaire about knowledge and attitudes toward acquired immunodeficiency syndrome (AIDS) and risk behaviors for HIV infection. Half the responders were also asked to provide a blood sample for HIV serotesting.*

*Response rates to the behavior questionnaire were high (85 to 90 percent). However, only 72 percent of those asked to provide a blood sample agreed to do so.*

*Survey results showed low rates of HIV risk behavior in this population sample. The median number of lifetime sexual partners was five for men and three for women, and most reported contacts exclusively with persons of the opposite sex. Eleven percent of the men and 5 percent of the women reported having had sexual partners of the same sex during their lifetime. Seven percent of men and 3 percent of women reported same sex partners in the last 12 months. Very few reported extremely high-risk behaviors (that is, only one man reported multiple sexual partners with anal intercourse in the previous year). About one in five survey respondents reported having changed his or*